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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,505	01/28/2004	Robert W. Warren JR.	STL11661	5517

7590 03/21/2006

Seagate Technology LLC  
1280 Disc Drive  
Shakopee, MN 55379

EXAMINER
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MARTINEZ, DAVID E

ART UNIT	PAPER NUMBER
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2181

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/767,505	Applicant(s) WARREN, ROBERT W.	
	Examiner David E. Martinez	Art Unit 2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-21 is/are rejected.
- 7) ☒ Claim(s) 14 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

  
**FRITZ FLEMING**  
 PRIMARY EXAMINER  
 GROUP 2100  
AA2181 3/16/2006

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/28/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-10, 15-18, are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,511,169 to Suda.

1. With regards to claim 1, Suda teaches a generic host interface [fig 1 element 1A] for a data storage device [fig 1 elements 7a, 7b] comprising:

a channel select bit encoder [fig 1, fig 2 element 21] to assert one or more channel select bits indicating one or more virtual channels through which the host interface will communicate over a data bus [column 4 lines 46-63];

a virtual channel controller [fig 1 element 4] to establish a peer-to-peer connection with a media controller [figs 7a, 7b must have a communication controller element within for communication to take place with fig 1 element 1A] of the data storage device based on the virtual channel indicated by the one or more channel select bits and perform address-less transfer of data over the data bus [column 4 lines 54-63, column 5 lines 9-12]; and

a communication controller [fig 1 element 6] to implement a communication protocol for communication with a host and transfer data to and from the media controller via the peer-to-peer connection based on the communication with the host [abstract, column 1 lines 32-35].

2. With regards to claim 2, Suda teaches the host interface of claim 1, wherein one virtual channel of the one or more virtual channels is used to establish a peer-to-peer connection to

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transfer data between the host interface [fig 1 element 1A] and the media controller [figs 7a, 7b communication controllers within, column 5 lines 9-12, column 6 lines 9-11].

3. With regards to claim 3, Suda teaches the host interface of claim 1, wherein one virtual channel of the one or more virtual channels is used to establish a peer-to-peer connection to transfer control signals between the host interface and the media controller [column 5 lines 12-14].

4. With regards to claim 4, Suda teaches the host interface of claim 1, wherein one virtual channel of the one or more virtual channels is used to establish a peer-to-peer connection to transfer side band information between the host interface and the media controller [column 6 lines 9-11 and 24-25, transferring data over a channel requires the use signals. Signals have an upper and lower amplitude as well as a frequency. The side of a signal having the upper amplitude is called the upper side band and the side of the signal having the lower amplitude is called the lower side band thus a channel communicating a signal transfers side band information].

5. With regards to claim 7 Suda teaches a data storage device media controller [fig 1 inside element 7a and 7b] comprising:

a channel select bit decoder [fig 1 inside element 7a and 7b] to decode one or more channel select bits from a host interface indicating one or more virtual channels through which the media controller will communicate over a data bus with the host interface [column 4 lines 46-63, column 5 lines 2-14];

a virtual channel controller to establish a peer-to-peer connection with the host interface based on the virtual channel indicated by the one or more channel select bits and perform address-less transfer of data over the data bus [column 4 lines 46-63, column 5 lines 2-14]; and

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a communication controller to transfer data to and from the host interface via the peer-to-peer connection [abstract, column 1 lines 32-35, column 6 lines 9-11, lines 24-25].

6. With regards to claim 8, it is of the same scope as claim 2 above and thus is rejected under the same rationale.

7. With regards to claim 9, it is of the same scope as claim 3 above and thus is rejected under the same rationale.

8. With regards to claim 10, it is of the same scope as claim 4 above and thus is rejected under the same rationale.

9. With regards to claim 15, it is of the same scope as the combination of claims 1 and 7 above and thus is rejected under the same rationale.

10. With regards to claim 16, it is of the same scope as claim 2 above and thus is rejected under the same rationale.

11. With regards to claim 17, it is of the same scope as claim 3 above and thus is rejected under the same rationale.

12. With regards to claim 18, it is of the same scope as claim 4 above and thus is rejected under the same rationale.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 11 and 19, are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,511,169 to Suda in view of US Patent No. 6,763,405 to Sardo et al. (hereinafter Sardo)

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13. With regards to claim 5, Suda is silent as to the host interface of claim 1, wherein the communication controller transfers data to and from the media controller synchronous with a clock in the host controller, however, Sardo teaches a host transmitting packets synchronously with a clock in the host controller to a peripheral for the benefit of maximizing transmission throughput to the peripheral [column 1 lines 23-27].

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Suda and Sardo to have the communication controller transfer data to and from the media controller synchronous with a clock in the host controller for the benefit of maximizing transmission throughput to the peripheral.

14. With regards to claim 11, it is of the same scope as claim 5 above and thus is rejected under the same rationale.

15. With regards to claim 19, it is of the same scope as claim 5 above and thus is rejected under the same rationale.

Claims 6, 12 and 20, are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,511,169 to Suda in view of US Patent No. 5,790,811 to Hewitt.

16. With regards to claim 6, Suda is silent as to the host interface of claim 1, wherein the communication controller transfers data to and from the media controller based on a quadrature handshake model, however, Hewitt teaches exchanging a sequence of ready and acknowledgement signals prior to a transferring data to and from a source and a destination (a "quadrature handshake model" as per applicant's specification page 8 lines 16-20) for the benefit of synchronizing the data source with the data destination for communication to take place [column 5 lines 11-39].

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Suda and Hewitt to have the communication controller transfer data

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to and from the media controller based on a quadrature handshake model for the benefit of synchronizing the data source with the data destination for communication to take place.

17. With regards to claim 12, it is of the same scope as claim 6 above and thus is rejected under the same rationale.

18. With regards to claim 20, it is of the same scope as claim 6 above and thus is rejected under the same rationale.

Claims 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,511,169 to Suda in view of US Patent No. 6,073,218 to Dekoning et al. (hereinafter Dekoning).

19. With regards to claim 13, Suda is silent as to the media controller of claim 7, wherein the media controller limits access to a storage medium of the data storage device through the peer-to-peer connection, however, Dekoning teaches a storage controller limiting access to a storage medium of a data storage device through a peer-to peer connection for the benefit of locking access to a storage to maintain mutual exclusion and data coherency while a single element has access to the storage device [column 3 line 43 to column 4 line 18].

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of both Suda and Dekoning to have the media controller limit access to a storage medium of the data storage device through the peer-to-peer connection for the benefit of locking access to the storage medium to maintain mutual exclusion and data coherency while a a single element has access to the storage.

20. With regards to claim 21, it is of the same scope as claim 13 above and thus is rejected under the same rationale.

***Allowable Subject Matter***

Claims 14 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As per claims 14 and 22, the prior art of record fails to teach or fairly suggest: limiting access to the storage medium based on one or more registers relating to each of the one or more virtual channels, in registers indicating a range of addresses on the storage medium that may be accessed via the related virtual channel.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 6,796,116 to Aruga teaches a protocol controller disposed between switches in a fiber channel fabric switch circuit and disk drive units for converting a protocol to enable one to one connectivity established between controllers and disk drive units.

US Patent No. 5,644,712 to Coscarella et al. teaches using logical channel groups to indirectly address channels, transferring information between devices and the processor using channels having channel path identifiers for identifying the channels.

US Patent Application Publication No. US 2005/0021890 A1 to Baker et al. teaches a multi protocol electrical interface.

US Patent No. 6,912,606 to Fay teaches a bus master on a serial bus that supports multiple data transmission protocols.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Martinez whose telephone number is (571) 272-4152. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fritz M. Fleming can be reached on 571-272-4145. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DEM

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